

- 1 1. A method of protecting a selected region of an image from subsequent editing, the
2 method comprising the steps of:
 - 3 (a) creating a first texture comprising a plurality of pixels each with an
4 assigned scalar value indicating a level of protection for a corresponding pixel of a
5 protected image;
 - 6 (b) directing graphical input into a second texture, wherein the protected
7 image is at least initially unedited by the graphical input;
 - 8 (c) modifying a value of at least one pixel of the second texture using the first
9 texture; and
 - 10 (d) blending at least one pixel of the second texture into the protected image.
- 1 2. The method of claim 1, wherein the graphical input represents a plurality of brush
2 strokes performed by a user.
- 1 3. The method of claim 2, wherein the plurality of brush strokes comprises at least
2 one overlapping portion.
- 1 4. The method of claim 3, wherein the at least one overlapping portion corresponds
2 to an area overlapped by a plurality of brush strokes.
- 1 5. The method of claim 2, wherein the plurality of brush strokes comprises at least
2 one member selected from the group consisting of a paint stroke, an erase stroke, a pencil
3 stroke, a pen stroke, a line application, a character application, a text application, a batch
4 deletion, a batch paste, and a flood fill.
- 1 6. The method of claim 5, further comprising the step of generating the graphical
2 input of step (b), wherein the graphical input corresponds to a movement of a user.

- 1 7. The method of claim 6, wherein the step of generating the graphical input
2 comprises assigning scalar values to pixels of a scratch texture that correspond to a
3 transition region at one or more edges of a brush stroke.
- 1 8. The method of claim 6, wherein the graphical input comprises a scratch texture
2 representing a brush stroke and step (b) comprises blending the scratch texture into the
3 second texture substantially upon completion of the brush stroke.
- 1 9. The method of claim 8, wherein the step of blending the scratch texture into the
2 second texture comprises performing a compositing operation.
- 1 10. The method of claim 9, wherein the compositing operation is an overlay operation
2 performed with pixels of A and B, where A comprises pixels having a paint color
3 attenuated by the scratch texture and B comprises the second texture.
- 1 11. The method of claim 6, wherein the step of generating the graphical input
2 comprises the step of, for each of at least a plurality of pixels of a scratch texture:
3 (i) comparing a candidate scalar value from received data to an existing
4 scalar value at a corresponding pixel of the scratch texture; and
5 (ii) assigning the candidate scalar value to the corresponding pixel of the
6 scratch texture only if the candidate scalar value exceeds the existing scalar value.
- 1 12. The method of claim 1, wherein the graphical input represents at least one brush
2 stroke performed by a user, and wherein the at least one brush stroke comprises at least
3 one overlapping portion corresponding to an area of a single brush stroke that overlaps
4 itself.
- 1 13. The method of claim 1, further comprising the steps of:
2 (e) copying at least one pixel of the protected image into a display image; and

- 3 (f) blending at least one pixel of the second texture into the display image.
- 1 14. The method of claim 13, wherein step (e) and step (f) are each performed prior to
2 step (d).
- 1 15. The method of claim 13, wherein at least one of step (c) and step (f) proceeds
2 pixel-by-pixel as the second texture accumulates graphical input.
- 1 16. The method of claim 13, wherein step (e) and step (f) are each performed prior to
2 step (d), and wherein at least one of step (c) and step (f) proceeds pixel-by-pixel as the
3 second stencil texture accumulates graphical input.
- 1 17. The method of claim 1, wherein the graphical input represents at least one erase
2 stroke performed by a user.
- 1 18. The method of claim 17, further comprising the step of:
2 (e) modifying a value of at least one pixel in the protected image using the
3 first texture.
- 1 19. The method of claim 18, wherein step (e) comprises attenuating a value of a pixel
2 in the protected image subject to a minimum RGBa alpha value, where the minimum
3 alpha value is determined using the first texture.
- 1 20. The method of claim 1, wherein the graphical input represents at least one paint
2 stroke and at least one erase stroke performed by a user.
- 1 21. The method of claim 1, wherein step (c) comprises attenuating values of pixels of
2 the second texture using values of corresponding pixels in the first texture.
- 1 22. The method of claim 1, wherein step (d) comprises performing a compositing
2 operation.

- 1 23. The method of claim 22, wherein the compositing operation is an overlay
2 operation performed with pixels of A and B, where A comprises the second texture and B
3 comprises the protected image.
- 1 24. The method of claim 23, wherein A comprises the second texture as modified in
2 step (c).
- 1 25. The method of claim 1, wherein step (c) and step (d) are performed substantially
2 simultaneously.
- 1 26. The method of claim 1, wherein the assigned scalar value of a pixel in the first
2 texture indicates a level of protection from 0% to 100%.
- 1 27. The method of claim 26, wherein the level of protection is a nonzero value less
2 than 100%.
- 1 28. The method of claim 26, wherein the level of protection relates to an opacity.
- 1 29. The method of claim 1, wherein the protected image is unedited by the graphical
2 input of step (b) until the blending in step (d).
- 1 30. The method of claim 1, wherein step (b) is performed following a first user signal.
- 1 31. The method of claim 30, wherein step (d) is performed following a second user
2 signal subsequent to the first user signal.
- 1 32. The method of claim 31, wherein the graphical input in step (b) represents a
2 plurality of paint strokes performed by the user between the first user signal and the
3 second user signal.
- 1 33. The method of claim 30, wherein the first user signal is a button click.
- 1 34. The method of claim 1, wherein the first texture represents at least one user-
2 selected region of the image.

1 35. A method of blending a brush stroke into a target image, the method comprising
2 the steps of:

3 (a) receiving data from a graphical user interface corresponding to a brush
4 stroke;

5 (b) for each of at least a plurality of pixels of a scratch texture:

6 (i) comparing a candidate scalar value from the received data to an
7 existing scalar value at a corresponding pixel of the scratch texture; and

8 (ii) assigning the candidate scalar value to the corresponding pixel of
9 the scratch texture only if the candidate scalar value exceeds the existing scalar
10 value; and

11 (c) blending the scratch texture into a target image.

1 36. The method of claim 35, wherein step (c) is performed substantially upon
2 completion of the paint stroke.

1 37. The method of claim 35, wherein the received data represent the brush stroke as a
2 plurality of pillboxes.

1 38. The method of claim 35, wherein the scratch texture comprises pixels
2 corresponding to a transition region along at least one edge of the brush stroke.

1 39. The method of claim 38, wherein a scalar value assigned to a pixel of the scratch
2 texture within the transition region is a function of a distance of the pixel from an edge of
3 the paint stroke.

1 40. The method of claim 35, wherein step (c) comprises performing a compositing
2 operation.

1 41. The method of claim 40, wherein the compositing operation is an overlay
2 operation performed with pixels of A and B, where A comprises pixels having a paint
3 color attenuated by the scratch texture and B comprises the target image.

1 42. A method of protecting a selected region of an image from subsequent editing, the
2 method comprising the steps of:

3 (a) creating a first texture comprising a plurality of pixels each with an
4 assigned scalar value indicating a level of protection for a corresponding pixel of a
5 protected image;

6 (b) directing graphical input into a second texture, wherein the protected
7 image is at least initially unedited by the graphical input, and wherein the graphical input
8 represents a plurality of user brush strokes;

9 (c) copying at least one pixel of the protected image into a display image;

10 (d) modifying a value of at least one pixel of the second texture using the first
11 texture;

12 (e) blending at least one pixel of the second texture into the display image;
13 and

14 (f) blending at least one pixel of the second texture into the protected image.

1 43. The method of claim 42, wherein step (b) is performed following a first user
2 signal.

1 44. The method of claim 43, wherein step (f) is performed following a second user
2 signal subsequent to the first user signal.

1 45. The method of claim 44, wherein the graphical input in step (b) represents a
2 plurality of paint strokes performed by the user between the first user signal and the
3 second user signal.